Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Implementation of Section 17 of the Cable Television Consumer Protection and Competition Act of 1992	)	ET Docket No. 93-7
	)	
Compatibility Between Cable Systems and Consumer Electronics Equipment	)	

COMMENTS OF THE CONSUMER ELECTRONICS GROUP
OF THE ELECTRONIC INDUSTRIES ASSOCIATION

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SUMMARY OF EIA/CEG COMMENTS

The Consumer Electronics Group of the Electronic Industries Association ("EIA/CEG") welcomes the opportunity to assist the Commission in developing rules and policies to promote compatibility between consumer electronics equipment and cable systems, as required by the Cable Television Consumer Protection and Competition Act of 1992 ("Cable Act"). EIA/CEG was a strong supporter of the legislative initiative that became Section 17 of the Cable Act, and we are eager to solve the problems that made this legislation necessary. A separate document, prepared jointly with the cable industry, responds to some aspects of the Notice. The views presented here are our own.

Like the Congress, we are concerned by the growing impediments to the ability of cable subscribers to enjoy all of the features of their television sets and videocassette recorders ("VCRs"). These problems are not caused by faulty consumer product design but by worrisome trends in the cable industry: fewer channels are delivered "in the clear," diverse scrambling technologies are in use, converter boxes are proliferating, and various digital compression technologies are being readied for deployment. These circumstances make it increasingly difficult to design full-featured consumer products for a national market.

The same TVs and VCRs that provide highly satisfying performance when used to receive broadcast signals cannot be used so successfully with cable. The root cause of this problem is that cable is not standardized in the same manner as electricity, AM and FM radio, and TV broadcasting, to name but a few examples. To the contrary, there are literally thousands of cable systems, and they provide signals in a patchwork quilt of formats. If each of 11,000 cable systems

Certain limited measures can be adopted expeditiously, to address such matters as operation of remote controls, commercial availability of remote controls and converter boxes, and information that cable operators must provide to subscribers. The short-term solutions adopted in these limited areas must not, however, distract attention nor divert progress from the more fundamental problems of cable-imposed limitations on use of TV and VCR features.

The most pressing problem is the way in which converter boxes "ration" consumer access to the programs for which they have paid, allowing access to only a single channel at a time. Alternative means of preventing theft of service avoid this problem. Traps, interdiction, and broadband descrambling all can eliminate compatibility problems by allowing for simultaneous "in the clear" access within the home to all authorized channels.

The Commission should also act now to prevent compatibility problems from being perpetuated, and exacerbated, as digital formats are introduced into cable systems. We believe that national digital transmission and compression standards -- for high-definition television and for compressed 525-line video -- are essential to permit the continued design of full-function consumer products. We also believe that the digital environment will enable development of a national renewable security system, probably based on

"smart card" technology," which can be incorporated directly in future consumer electronics products. To prevent creation of a new generation of compatibility problems, some in the consumer electronics industry believe the Commission should consider prescribing a moratorium on use of digital formats for cable signals until standards issues are properly addressed.

The legislation requires the Commission to establish criteria to permit TVs and VCRs to be marketed as "cable-ready." We are prepared to help define that term. But the exercise will be meaningless unless the cable environment is defined in stable terms. What is cable-ready today will not be so tomorrow, if the cable companies are permitted to change, constantly and unpredictably, (1) the number of channels delivered to the home, (2) their channel mapping schemes, (3) the remote control IR (infrared) codes for cable converters, (4) overall signal performance parameters, and (5) standards for transmission, compression, and scrambling.

By the time most of the TVs and VCRs in use today in American homes are retired, it will be close to the year 2008, which is the date by which the Commission plans to discontinue NTSC broadcasting. Meaningful progress on compatibility problems, however, should start immediately. The Commission can permit increased use of consumer electronics functionality -- and foster continued innovation in cable services and

consumer products -- only by using its ample authority, under the law, to require changes in cable industry behavior. In particular, efforts are needed to promote simultaneous "in the clear" access to all authorized channels delivered to the home. And, to avert the chaos that multiple digital formats could cause for consumers, manufacturers, and retailers, work should begin now on digital transmission, compression, and security standards as well.

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COMMENTS OF THE CONSUMER ELECTRONICS GROUP OF THE ELECTRONIC INDUSTRIES ASSOCIATION

The Consumer Electronics Group of the Electronic Industries Association ("EIA/CEG") hereby responds to the Notice of Inquiry ("Notice") in which the Commission has solicited information regarding means of promoting compatibility between consumer electronics equipment and cable systems, as required by the Cable Television Consumer Protection and Competition Act of 1992 ("Cable Act").[1] The Notice represents a welcome effort to develop a factual record that can serve as the basis for a report to Congress that is due in October 1993 and regulations which must be adopted by April 1994.

EIA/CEG was a strong supporter of the legislative initiative that became Section 17 of the Cable Act, and we

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1/ Pub. L. No. 102-385, 106 Stat. 1460 (1992)("Cable Act").

plan to participate actively in this proceeding. We have worked with the principal representatives of the cable industry through the Cable-Consumer Electronics Compatibility Advisory Group ("Advisory Group") to prepare a joint submission on certain topics addressed in the Notice, focusing primarily on factual matters on which it was practical for the two industries to present information in concert. These EIA/CEG comments, by contrast, discuss a wider variety of issues, include more legal and policy analysis, and present perspectives with which the cable industry may not fully agree.

I. Introduction of EIA/CEG and Statement of Interest.

EIA/CEG represents the consumer electronics industry, an industry that provides the American public with televisions, radios, videocassette recorders ("VCRs") and camcorders, compact disc players, and a wide variety of other products. Our membership includes most major consumer electronics manufacturers, as well as many smaller companies that design, produce, import, distribute, sell, and service electronics products in the United States.

On behalf of our members, we participate in numerous FCC proceedings, involving such matters as digital audio radio, advanced television, closed-captioning, and a variety of other subjects. We also participate in

[redacted]

information to consumers, and establish industry standards (under the auspices of the American National Standards Institute). In all these endeavors, our mission is to promote competition, innovation, and interoperability of consumer products, thereby bringing quality, choice, and value to the consumer.

EIA/CEG has an intense interest in this proceeding. Over the past several years, we have grown increasingly concerned about the inability of cable subscribers to enjoy all the features of their television sets and VCRs. We have heard frequent complaints from cable subscribers that they could not use the remote controls supplied with their TVs or VCRs; watch one program while taping another; use their VCRs to record two sequential programs that appear on separate channels; or enjoy the

their use of scrambling (because more consumers are "rationed," via converter boxes, to reception of a single channel at a time).[3]

Years of dialogue with the cable industry have consumed substantial resources but generated little meaningful progress in several critical areas. Present trends are ominous: fewer channels are delivered "in the clear," diverse scrambling technologies are being used, converter boxes are proliferating, and various digital compression technologies are being readied for deployment. These circumstances make it increasingly difficult to design full-featured consumer products for a national market. For our industry, and for the consumers we serve, this proceeding comes just in time.

II. Preliminary Statement.

Our perception of the compatibility crisis is shared by legislators. The consumer frustrations described above were experienced, first-hand, by Senator Patrick Leahy (D-VT). Explaining his decision to introduce the legislation which was ultimately included (in a modified version) as Section 17 of the Cable Act, he suggested that cable companies, operating as unregulated monopolies, have not paid sufficient attention to

[redacted]

this year. These bilateral meetings will continue, in parallel with the Commission proceeding. The FCC's early participation, through the Notice, may serve as a spur to the inter-industry discussions.[7]

We earnestly believe that both industries -- and, more importantly, consumers -- may be best served if cable and consumer electronics companies are able to reach agreement on

products, for example, have no compatibility problem because it is known, in advance, that the local power company -- in any city, town, or hamlet anywhere in the nation -- will deliver 60-cycle, 110-volt, alternating current electricity. AM and FM radios can likewise be designed, sold, purchased, and used without fear of incompatibility because standard frequencies and transmission formats are used, nationwide, for AM and FM radio broadcasting.

In a similar manner, today's televisions and VCRs are designed to work with the television transmission standards specified by the National Television Systems Committee ("NTSC") and the radio frequency assignments prescribed by the Commission, which are used by TV broadcasters in all 50 states.[9] It is this standard that permits mass production of consumer electronics equipment for a national market (more than 21 million TVs per year, and 12 million VCRs, are sold annually in the United States).[10] Manufacturers rely on economies of scale to produce a broad range of reliable products at low cost, and this is the basis for the robust competition that serves consumers so well.[11]

9/ Many improvements have been made in the NTSC standard over the years (most notably, the additions of color and stereo sound). Changes, however, have been made in a "backwards-compatible" manner. As a result, early NTSC receivers still function properly with today's TV broadcast signals.

10/ Electronic Industries Association, Consumer Electronics - U.S. Sales 1989-1993 Estimates, at 3 (TVs), 7 (VCRs).

11/ Other examples could be cited. Telephone service and related consumer products are also based on national standards.

The same TVs and VCRs, however, often cannot be used so successfully with cable. The root cause of this problem is that cable is not standardized in the same manner as electricity, AM and FM radio, and TV broadcasting. To the contrary, there are over 11,000 cable systems, and they provide their services in a patchwork quilt of formats.

In any given cable system, one or more signals may be scrambled, using any one of several different scrambling methods. Channels may be transmitted between the headend and the consumer's premises using frequencies other than those normally associated with the channel numbers. The number of channels on the cable system may change unpredictably from one day to the next. Given these and other wide variations in environments (with more complications -- most notably digital transmission and compression -- on the way), it is not at all practical to design consumer electronics products that are "compatible" with each characteristic of every cable system. This is the principal cause of the compatibility problems that led to inclusion of Section 17 in the Cable Act. This is the principal problem that the Commission needs to remedy.

As the Commission considers how best to solve

Policymakers should be much more reluctant to restrict the performance of a robustly competitive industry sector. For the same reasons, the Commission should favor solutions that maintain functionalities in the competitive arena (and migrate functionalities from the monopoly realm into the competitive arena), and reject approaches that unnecessarily allow for customer-premises functionalities to be provided only as a bundled element of monopoly services.[12]

The Commission should also be attentive to the need to devise solutions that recognize the enormous installed base of TVs and VCRs. There are approximately 200 million TVs in use today in this country, and there are about 100 million VCRs as well, representing consumer investment of more than $100 billion. There is no practical way in which these TVs and VCRs can be modified to make them more compatible with the cable systems to which they are connected. There are, by contrast, modifications that can be made in the short- and intermediate-term to make

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12/ The Commission took one major step in the right direction in establishing a "demarcation point" for cable service in the cable home wiring proceeding. Implementation of the Cable Television Consumer Protection and Competition Act of 1992, Cable Home Wiring, at ¶ 11, MM Docket No. 92-260, FCC 93-73 (released Feb. 2, 1993). Unfortunately, due to severe time constraints, the Commission limited its ruling to situations where cable service is terminated. It deferred consideration of a regulatory regime under which the demarcation point would serve as the dividing line between monopoly cable services and the competitive consumer premises, as had been proposed by a large and diverse group of parties including consumer groups, telephone companies, alternative video providers, and others. Id. at ¶ 6 & n.11.

cable systems more compatible with consumers' equipment; some can produce immediate improvements. The only way to give full function to consumers' investments in their existing equipment is if all authorized signals are simultaneously available in a standardized format. In our judgment, these modifications should be the primary focus of the Commission's efforts in this proceeding.

As the Commission begins its efforts to ensure that Section 17 of the Cable Act is implemented properly, we believe it will be essential to focus on three critical and interrelated objectives:

- to enable consumers to use and enjoy the functions of their consumer electronics equipment, now and in the future, with a growing range of cable and other video delivery services;

- to promote continued competition and innovation in consumer electronics products; and

- to prevent cable companies from imposing unnecessary burdens on consumers or on consumer electronics manufacturers.

We are eager to work cooperatively with the Commission and other parties toward these ends. We will also support efforts to craft more limited measures, which can be adopted expeditiously, to address such matters as operation of remote controls, commercial availability of remote controls and converter boxes, and information that cable operators must provide to subscribers. But we caution that the short-term solutions adopted in these limited areas must not

-- They resent the extra expense of renting remote controls and converter boxes.[13]

-- They resent the "clutter" of multiple boxes and multiple remote controls. [14]

° Both the cable and consumer electronics industries would benefit if consumers' concerns were addressed:

-- Satisfied consumers will buy more products and services.

-- Solutions to compatibility problems will reduce complaints, product returns, and service cancellations.

° Cable system operators and program providers are entitled to reasonable protection against unauthorized reception of service.

° Consumer electronics manufacturers and retailers need to make their plans on the basis of a national market:

-- Consumers expect products to work "right out of the box."

-- They also expect that their products will continue to function properly when they move from one location to another.

° There are substantial variations among local cable systems (different scrambling schemes, different channel mappings, interdiction, negative traps, positive traps, etc.).

13/ Consumers spend an estimated $1.5 billion annually on converter box and remote control rentals. Additionally, subscribers to non-basic cable services pay, on average, 20 percent more each month in converter box and remote control rental charges.

14/ Our survey found that a very substantial majority of cable subscribers would prefer not to use a converter box with their TVs and VCRs if they could still have access to the same cable programming. Further, of cable subscribers who prefer not to use a converter box, 29 percent cited convenience, 32 percent cited cost and convenience, and only 12 percent cited cost alone as their reason.

° Continued innovation is desirable both in the provision of cable service and in the manufacture of consumer electronics products.

° Consumer electronics products cannot reasonably be expected to be "compatible" with cable systems if the characteristics of those systems vary widely and are constantly in flux.

° The installed base of TVs and VCRs includes approximately 300 million units, representing an aggregate consumer investment of more than $100 billion:

-- There is no practical way in which the consumer electronics industry can make its previously sold products more compatible with the cable services to which they are connected.

-- The intent of the legislation is to address problems with the installed base, as well as new equipment beginning some years into the future.

The foregoing is a tentative list of proposed points of agreement. We hope that discussions with the cable industry will allow the list to be lengthened. In any event, identifying areas of consensus seems to be the best way to begin developing the right solutions to compatibility problems.

IV. Cable Technologies and Operating Practices.

The first group of questions presented in the Notice (¶ 12) relates to technologies and operating practices of the cable industry. Those questions can best be addressed, at least in the first instance, by the cable industry. The cable operators are the ones most familiar with their own practices and plans in such areas as channel

count, scrambling, and new compression and transmission standards.

We firmly believe, however, that the cable industry's view of the relative merits and demerits of particular technologies or operating practices should not preclude the Commission from reaching different determinations. After all, Congress has directed the Commission to promote compatibility, and compatibility does not appear to have been one of the criteria most assiduously taken into account in the cable industry's decisionmaking over the past several years. To the contrary, there is abundant evidence that the cable operators have routinely placed other considerations higher, while neglecting effects on consumers' ability to use their TVs, VCRs, and remote controls.[15]

Only one question in Paragraph 12 calls for information about consumer electronics equipment: "what is the effect of channelization practices and security systems on the operation of extended features of television

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15/ Introducing the bill that later became Section 17 of the Cable Act, Senator Leahy stated, "[I]t is more and more evident to me that the main reason for converter boxes is that cable companies can charge for them. The fact that you bought a whole lot of equipment that you are not going to be able to use is immaterial to them as long as they are making money. The heck with whatever inconvenience it causes you." Leahy Statement at S 18378. Our survey found that cable subscribers would prefer, by a two-to-one ratio, to use their TV or VCR remotes rather than cable box remotes.

receivers, videocassette recorders and other related consumer television equipment?" Initial discussion of the technical aspects of these practices can be found in our joint comments. The implications of these practices for compatibility are another matter. Channelization and security systems raise different issues and are therefore discussed separately below.

Channelization. The primary problem with channelization is that the number of channels delivered by cable systems represents a moving target. When cable companies offered 22 channels of programming, consumer

digital compression techniques to transmit multiple channels of programming within the standard 6 MHz of bandwidth.[17] Consumer electronics manufacturers are fully capable of

single "universal" converter box that will interoperate successfully in all channel-mapped environments.[18]

Security Systems. Although channelization practices create compatibility problems, security systems present even greater complications. Today, cable operators use negative traps, positive traps, addressable traps, interdiction, and a wide variety of scrambling techniques -- sync suppression, phase modulation, video inversion, and combinations thereof -- to prevent unauthorized reception of their programming.[19] Except for scrambling, these techniques all coexist peacefully with consumer electronics equipment. Scrambling, by contrast, requires use of cable-company-provided converter boxes,[20] and these in turn cause the raft of inconveniences described in Section 17 of the Cable Act.[21]

18/ The new extended data service feature (see infra note 69) to be included in TVs and VCRs may offer an opportunity to "educate" a receiver on mapping of frequencies in a cable system. We believe this possibility warrants exploration in bilateral discussions between the industries.

19/ The success of these tactics is open to question. The cable industry claims that it loses substantial revenues every year to piracy. But see infra note 40.

20/ As in pleadings submitted in earlier Cable Act implementation proceedings, we use the term "converter boxes" to include descramblers, addressable converters, and similar devices. All such devices are commonly referred to by consumers as converter boxes (or, sometimes, "cable boxes"), and all cause the kinds of compatibility problems Section 17 of the Act is intended to remedy.

21/ Communications Act of 1934, § 624A(a).

The basic problem is that commonly available converter boxes allow only one channel through at a time. An additional problem is that they only descramble one channel at a time. The signal is then handed off to the TV or VCR at a standard frequency (usually Channel 3 or 4). This practice of limiting access to a single channel at a time is the principal cause of the inconveniences described in Section 17 of the Cable Act.[22] Thus, it is impossible for the consumer to use the remote control supplied with the TV or VCR,[23] to watch one channel while recording another, to record programs sequentially on different channels, or to use picture-in-picture features.[24]

22/ The cable industry has acknowledged these problems, at least on occasion. As NCTA stated in a recent filing with the Commission, "scrambling can introduce serious consumer unfriendliness. It requires that the subscriber use the cable-supplied tuner which tunes every incoming signal to one channel, thereby rendering VCRs incapable of recording one channel while the viewer watches a second channel, and disabling such features as picture-in-picture on more sophisticated television receivers." Comments of the National Cable Television Association, at 11, MM Docket No. 92-262 (Jan. 13, 1993).

23/ 84 percent of cable subscribers have remotes that came with their TVs, yet roughly 60 percent of those TV remotes are made redundant by cable-supplied remote controls.

24/ These problems can be mitigated -- but not completely eliminated -- through a variety of complicated wiring arrangements which, in the aggregate, merely underscore the complexity of the problem. NCTA has published a booklet diagramming more than two dozen different wiring arrangements, with converter boxes, splitters, A/B switches, and the like, to connect TVs and VCRs to cable service. The choice of one of the numerous wiring configurations depends on the number of converters to be used, the desirability of

(Footnote 24 continued on next page)